

Prosthodontic Management of Sulcoplasty and Sialodochoplasty with a Conforming Surgical Stent

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Abstract

This clinical report describes the management of chronic, proliferative inflammatory epithelial and fibrous hyperplasia following loss of a mandibular implant-retained prosthesis. A classic surgical technique was used. The patient was referred to the oral surgeon for sialodochoplasty and sulcoplasty. With a combination of surgery and prosthodontic management with a conforming surgical stent, a satisfactory denture foundation was created, allowing for fabrication of an implant-retained definitive prosthesis.

Despite evolution in the technology to preserve the dentition, there is still a need for prosthetic restoration and rehabilitation of partially edentulous and edentulous patients. The prosthetic replacement of lost teeth frequently involves surgical preparation of oral tissues to support a prosthesis. This is the primary objective of preprosthetic surgery.¹ Surgical improvement of the denture-bearing area and surrounding tissues presents an exciting and demanding challenge to clinicians.

Prior to the development of root form implants, the goal of the prosthodontist and the oral surgeon was to obtain and preserve an ideal denture foundation through the use of preprosthetic surgical techniques.^{2–5} With the wide use of implants, there is a tendency to forgo techniques and procedures traditionally used for nonimplant-retained prostheses. The use of grafted skin as a prosthesis-bearing tissue is not new. In 1917, Esser reported the use of an “epidermic inlay” procedure in the oral cavity.⁶ His procedure consisted of the transplantation of a split-thickness skin graft with a stent of modeling compound. As a

lining for bony or soft tissue surfaces, supported skin prevents the retraction of flaps, inhibits production of granulation or polypoid tissue, and enables patients to wear prostheses earlier and more comfortably.⁶

Clinical report

In March 2005, a 67-year-old edentulous female patient presented with three implants that had been placed in her mandible 11 years prior (Fig 1). The implants had supported a mandibular complete overdenture prosthesis retained by ball abutments. In October 2004, after losing her mandibular complete overdenture prosthesis, she was referred to an oral surgeon to whom she reported loss of her prosthesis and complained of pain in the area of the implants. Examination revealed that her implants were covered by soft tissue, which prolapsed from the floor of the mouth over the crest of the alveolar ridge (Fig 2). The floor of the mouth was firm, and no lingual vestibule was present. The openings to Warthin’s ducts were anterior to the middle

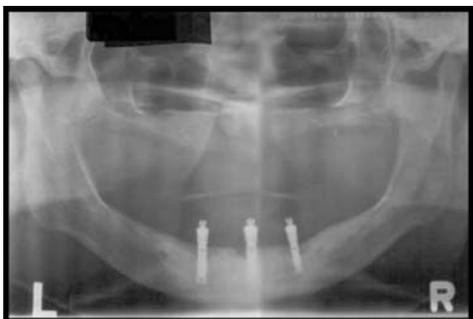


Figure 1 Panoramic radiograph.



Figure 2 Patient at initial presentation.

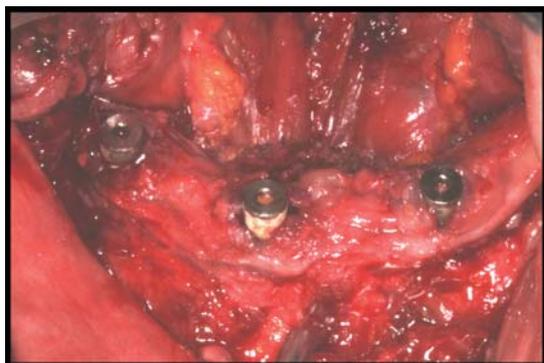


Figure 3 Supra-periosteal dissection exposing mandibular implants.

implant. A biopsy of the floor of the mouth revealed significant inflammatory epithelial and fibrous hyperplasia. A CT scan and MRI were negative for any type of neoplasm. Upon determination that chronic trauma from the implant abutments was the etiology of this clinical presentation, the patient was referred to Montefiore Medical Center, Division of Prosthodontics, for treatment.

Procedures

A collaborative determination was made that the sialodochoplasty and sulcoplasty were indicated. Options included use of the existing implants to retain a conforming surgical stent or the technique described by Obwegeser.^{7,8} Preliminary casts of type 3 stone (Denstone, Heraeus Kulzer, Armonk, NY) were prepared, and a stent was fabricated of urethane-di-methacrylate (Triad Tru Tray, Dentsply International, York, PA). The patient was taken to the operating room for treatment under general anesthesia. With careful dissection, Warthin’s ducts were located, cannulated, and repositioned. After reflection of the ridge mucosa, the muscle attachments of the genioglossus, geniohyoid, mylohyoid (posteriorly), and submucosal tissues were detached from the periosteum (Fig 3). The superior genial tubercles were removed. The muscles were left unattached so they could

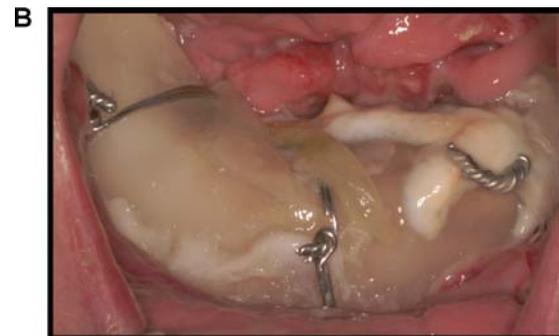


Figure 4 (A) Skin graft in stent. (B) Stent fixated with circummandibular wires.

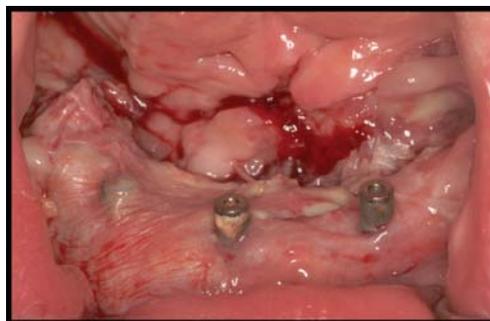


Figure 5 Surgical site 10 days postoperative.

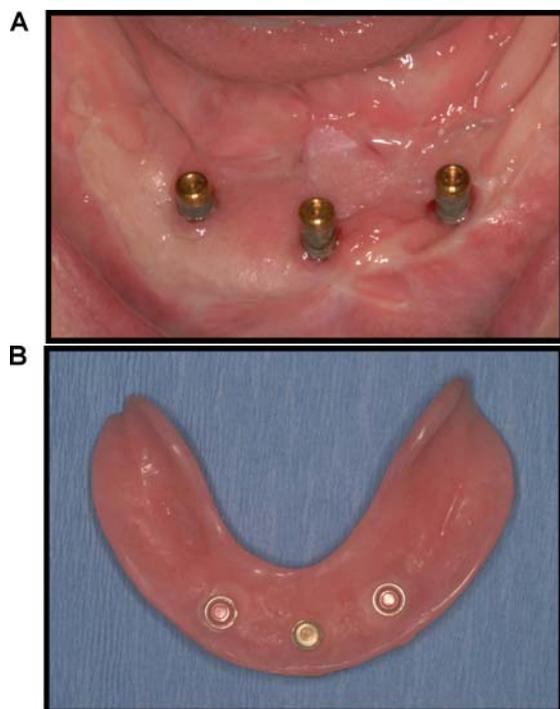


Figure 6 (A) Twenty-eight days postoperative. (B) Attachments in their retentive housings.

reposition inferiorly.^{9,10} The mucosa was sutured in an inferior position. A 0.016" split-thickness skin graft was harvested from the patient's left upper thigh using a dermatome. The harvested skin graft was applied to the relined stent (Fig 4A) and fixated with circummandibular wires (Fig 4B). Ten days later the stent was removed (Fig 5). Upon removal, the stent was relined with a resilient tissue conditioner (Permasoft, Dentsply Austenal, York, PA), and the patient was instructed to wear the interim conforming stent until completion of treatment. Upon tissue maturation, a satisfactory denture foundation was formed, and fabrication of the definitive prosthesis began (Fig 6A). Conventional complete denture techniques were

used, and the implant retentive elements (Locator attachment, Zest Anchors, Escondido, CA) were transferred to the prosthesis in their retentive metal housings (Fig 6B).

Conclusion

In the age of implant dentistry, classic preprosthetic surgical techniques should not be abandoned. Through effective communication between the prosthodontist and oral surgeon, a satisfactory denture foundation was recreated, allowing for fabrication of an implant-retained definitive prosthesis.

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